

REMARKS

Favorable reconsideration of the present application is respectfully requested.

Claims 1-10 remain active in the application.

Claim 1 has been amended to recite that the hybrid construction machine has a work tool and at least two electric motors, at least one of the electric motors operating the work tool. Basis for the work tool may be found, for example, in the bucket 21 shown in Figure 3. Basis for the electric motors may be found, for example, in the motors 6, 7, 13, 15, 23 and 25.

The Title of the Invention has been modified in accordance with the requirement of paragraph 2 of the Office Action.

Claims 1, 2 and 4 stand rejected under 35 U.S.C. § 102 as being anticipated by the U.S. patent to Chappell et al (U.S. patent 5,547,208). This rejection, however, is respectfully traversed.

According to a feature of the invention set forth in Claim 1, a hybrid construction machine includes both a main battery and an auxiliary battery, and a switch is provided for switching the drive for the electric motors between normal power by at least one of the power generator and the main battery in a normal operation state, and auxiliary power by the auxiliary battery in an emergency operation state where the electric motors cannot be driven by the normal power. For example, referring to the non-limiting embodiment disclosed in Figures 1-3, a hybrid construction machine has an electric power generator 11 driven by an engine 10. Electric motors 6, 7, 13, 15, 23 and 25 operate components of the construction machine including the bucket 21, and are normally driven by either the power generator 11 or the main battery 12, via the motor controller 37. In accordance with the invention, there is

further provided a switch 43 which switches the drive power for the electric motors from the normal power state by the generator 11 and/or the main battery 12 to an auxiliary power state by the auxiliary battery 42. The switch may be manually operated, or may be operated automatically when a defect is detected (page 10, lines 10-12). It is thus possible to rely upon the energy stored in the auxiliary battery 42 under emergency conditions to drive at least one of the motors.

Chappell et al is not directed to a hybrid construction machine. Rather, it is directed to a motor vehicle such as a van, and has the object of powering the electrically operated window and door locks independently of the vehicle main battery (column 2, lines 28-32). It therefore provides a control assembly 18 operable for sensing when the vehicle's main battery 12 is destroyed or disconnected, and switching power of the window indoor locks to the auxiliary battery 16 under such conditions (column 5, line 52 through column 6, line 7) to prevent the vehicle occupants from being trapped in the event of a collision.

In rejecting the claims under 35 U.S.C. § 102, the Examiner recognized that Chappell et al is not a hybrid construction machine but took the position that: “‘hybrid construction machine’ is nothing but a name of a type of vehicle in the preamble without any supporting recitation in the body of the claims and as such lacks any patentable weight.” Claim 1 has therefore been amended to recite structure in the body of the claim to support the “hybrid construction machine” recitation of the preamble. Specifically, Claim 1 now recites that the hybrid construction machine has a work tool and that at least one of the electric motors drives the work tool. Claim 1 therefore recites structure of a hybrid construction machine, and so structurally differs from a vehicle which lacks a work tool and simply switches power for the

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door locks and power windows. Accordingly, amended Claim 1 defines over Chappell et al.

Claim 3 further recites that the hybrid construction machine is a hybrid excavator. Claim 3 was rejected under 35 U.S.C. § 103 as being obvious over Chappell et al because it allegedly “would have been obvious to one of ordinary skill in the art at the time of the invention to have applied the teachings of Chappell et al to a hybrid excavator since such was an old and known vehicle in the art at the time of the invention and since such a vehicle shared the same problems of unsafe conditions when the normal power sources of the vehicle fail.” Presumably, this rationale would also apply to the amended Claim 1. However, the motivation alleged in this rejection would not have rendered it obvious for one skilled in the art to have provided a hybrid construction machine such as an excavator, having a work tool and at least one electric motor for operating the work tool, with a switch for switching drive to the electric motors.

As discussed above, the teaching of Chappell et al is for an auxiliary battery which can operate power windows and door locks in case of incapacity of the main battery, and a switch for switching window and door lock power to this auxiliary battery during emergency conditions to prevent the vehicle occupants from being trapped in the event of a collision. This might suggest the provision of an auxiliary battery and switch *for powering power door locks and windows* for the cab of a hybrid construction machine to prevent the occupant of the cab from being trapped in the event of an emergency, since this is the specific problem “of unsafe conditions when the normal power sources of the vehicle fail” which is described in Chappell et al. **But it would not suggest such an auxiliary battery and switch for powering a motor for a work tool of a construction machine since a work tool of a**

**construction machine has nothing to do with the ability of the cabin occupant to escape in the event of a collision**, and since powering of a work tool of a construction machine is not comparable to powering of door locks and windows of a vehicle cabin.

The motivation taught in the reference has nothing to do with work tools, and so would not motivate one skilled in the art to provide emergency power for a work tool of a construction machine. Additionally, power doors and windows are low power auxiliary devices for a cabin enclosure, drawing only a few amps and requiring only a small auxiliary battery. Such power doors and windows, whether in a van or a hybrid construction machine, can thus be adequately powered by the 12 volt, 7.5 amp battery 16 of Chappell et al (col. 4, lines 33-34), positioned in the passenger compartment of the vehicle of Chappell et al. In contrast, the work tool of a construction machine has large power requirements. For example, the minimum generator power mentioned in Figure 7 of the present application is 4kW, almost 50 times the 90 watt nominal power produced by the auxiliary battery in Chappell et al. Such a small battery could not sufficiently power an electric motor driving the work tool of a hybrid excavator, and so those skilled in the art would not expect that an auxiliary battery and switch for power windows or door locks would be applicable to work tool motors. Applicants therefore respectfully submit that Chappell et al would provide no teaching which those skilled in the art would have found it obvious to have applied to a motor for a work tool in a hybrid excavator.

Claim 4 is directed to an embodiment wherein a control apparatus of a hybrid construction machine includes a generator output control body for varying the power output from the power generator in accordance with the content of work performed. For example,

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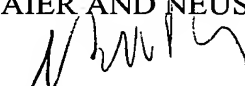
referring to the non-limiting embodiment of Figure 4, a generator output control unit 51 can vary the power output from the power generator 11, for example, as shown in Figures 6 and 7, in accordance with the content of the work as shown in Figure 6. The Examiner has not alleged that such a generator output control body is present in Chappell et al, nor are Applicants aware of a teaching of the same in the reference. Claims 4-6 are therefore believed to define over Chappell et al.

Concerning paragraph 6 of the Office Action, i.e., the rejection of Claims 5-10 as being obvious over Chappell et al in view of U.S. patent 6,427,107 to Chiu et al, it is noted that Chiu et al was filed on June 28, 2001, which is subsequent to the June 21, 2000 PCT filing date of the present application. Accordingly, Chiu et al is not prior art with respect to the present application, and so this rejection is improper.

Applicants therefore believe that the present application is in a condition for allowance and respectfully solicit an early Notice of Allowability.

Respectfully submitted,

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